

WHAT IS CLAIMED IS:

1. A structure suitable for use in a semiconductor electronic device, comprising:

5 side walls lying over the sides of a gate electrode of a field effect transistor formed over a substrate, said each side wall having a structure convex toward the substrate side, and

10 silicides respectively formed over a source and a drain and the gate electrode of said field effect transistor.

2. The structure as claimed in claim 1, wherein said structure convex toward the substrate side is 15 arcuate or rectangular.

3. A structure suitable for use in a semiconductor electronic device, comprising:

20 side walls composed of silicides, which are lower than side walls formed on the sides of a gate electrode of a field effect transistor formed over a substrate, said side walls being formed in contact with said side walls formed on the sides thereof; and

25 silicides respectively formed over a source, a drain and the gate electrode of said field effect transistor.

4. The structure as claimed in claims 1 to 3,
wherein said substrate is an SOI substrate or an Si
substrate.

5

5. A method of manufacturing a semiconductor
electronic device, comprising the following steps:

a step for forming a gate electrode of a field
effect transistor over a substrate;

10 a step for forming first side walls over side walls
of said gate electrode on a self-alignment basis
respectively;

15 a step for performing over etching and etching
edges of said first side walls until the exposure of
said substrate by using trenching effects at the edges
of said first side walls;

a step for subjecting the exposed substrate to
thermal oxidation to thereby form an oxide film
substantially identical in quality to a gate oxide film;

20 and

a step for forming second side walls over side
walls of said first side walls; and wherein said
respective steps are successively executed.

25 6. A method of manufacturing a semiconductor
electronic device, comprising the following steps:

a step for forming a gate electrode of a field effect transistor over a substrate;

a step for forming first side walls over side walls of said gate electrode on a self-alignment basis

5 respectively;

a step for performing over etching and etching edges of said first side walls until the exposure of said substrate by using trenching effects at the edges of said first side walls;

10 a step for further etching said exposed substrate;

a step for forming an oxide film substantially identical in quality to a gate oxide film by thermal oxidation; and

15 a step for forming second side walls over side walls of said first side walls;

and wherein said respective steps are successively executed.

7. A method of manufacturing a semiconductor
20 electronic device, comprising the following steps:
a step for forming an SiO_2 film over a substrate;
a step for forming Poly-Si or amorphous Si over
said SiO_2 film;
a step for patterning said Poly-Si or amorphous Si
25 by known photolithography and etching;

a step for selectively growing an Si film over the surface of said Poly-Si or amorphous Si;

a step for performing etching with the selectively grown Si film as a mask to thereby remove said SiO_2 film;

5 a step for further performing etching to thereby
define trenches in said substrate;

a step for removing the selectively grown Si film and said Poly-Si or amorphous Si;

a step for forming a gate electrode of MOSFET
10 within a region interposed between the trenches defined
in said substrate; and

a step for forming side walls over side walls of said gate electrode and burying the trenches defined in said substrate by lower portions of said formed side walls.

8. A method of manufacturing a semiconductor electronic device, comprising the following steps:

a step for defining trenches in a substrate by known photolithography and etching;

a step for forming an Si film over said substrate by selective epitaxial growth of Si to thereby adjust the depth and width of said each trench;

a step for forming a gate electrode of MOSFET
25 within a region interposed between the trenches defined
in said substrate; and

a step for forming side walls over side walls of said gate electrode and burying the trenches defined in said substrate by lower portions of said formed side walls.

5

9. A method of manufacturing a semiconductor electronic device, comprising the following steps:

a step for forming a gate electrode over a substrate;

10 a step for forming first side walls over side walls of said gate electrode;

a step for depositing Poly-Si or amorphous Si over said substrate;

15 a step for performing anisotropic drying etching of Si to leave said Poly-Si or amorphous Si equivalent to less than or equal to one-half the height of said each first side wall over side walls of said first side walls, thereby forming second side walls;

20 a step for next forming a metal film and forming silicides by heat treatment.

10. The method as claimed in claims 5 to 9, wherein said substrate is an SOI substrate or an Si substrate.